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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/713,385	GONDA, RUMI SHERYAR	
	Examiner	Art Unit	
	KENAN CEHIC	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29,81 and 82* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29,81 and 82* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 81-82 are objected to because of the following informalities: Full written out phrase for "MAC" and "OAMP" needs to be provided. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-28 are rejected, since they are directed to a single means claim.

3. Claims 24, 81-82 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For claim 24, "MAC OAMP Control layer" has not antecedent basis.

For claim 81 and 82, "the MAC OAMP control sublayer" has no antecedent basis.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claim 81 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muir et al. "OAM&P for EFM" in view of Hall et al (US 7,227,844) (as evidenced by Ellis et al US 6,888,791),

For claim 81, Muir discloses a method of providing Ethernet Operations, Administration, Maintenance, and Provisioning OAMP functionality (see page 1 "Operations, Administration, Maintenance & Provisioning"; page 3-5; OAM&P features…OAM&P Options"; pages 9-11 "Automatic PON discovery"; page 13 "fault detection…") on an Ethernet protocol network (see page 3 "EPON…Ethernet"; page 14 "EPON…Ethernet) of a plurality of Ethernet Media Access Control (MAC) hardware devices device (see pages 9-11 "CPE…installed on an EPON segment…CPE MAC address…head-end MAC"; page 13-14 "EPON CPE…CPE…CPE MAC…head"; page 3 "end-node"), wherein a Ethernet (see page 1 "Operations, Administration, Maintenance & Provisioning"; page 3-5; OAM&P features…OAM&P Options"; pages 9-11 "Automatic PON discovery"; page 13 "fault detection…"; see page 3 "EPON…Ethernet"; page 14

"EPON…Ethernet" ; page 3 "OAM&P feature set from…SONET…one common set") MAC OAMP Control provides architecture for OAMP functionality ((see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame"; see page 11 "sets register bit…not respond to a multicast IDREQUEST"; page 13 "CPE to set a timer for a given period"…CPE has not received a further stay-alive frame") in the form of at least one of configuration management ((see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame"; see page 11 "sets register bit…not respond to a multicast IDREQUEST"; page 13 "CPE to set a timer for a given period"…CPE has not received a further stay-alive frame");and wherein the plurality of Ethernet MAC hardware devices (see pages 9-11 "CPE…installed on an EPON segment…CPE MAC address…head-end MAC"; page 13-14 "EPON CPE…CPE…CPE MAC…head"; page 3 "end-node") provides Ethernet OAMP functionality (see page 1 "Operations, Administration, Maintenance & Provisioning"; page 3-5; OAM&P features…OAM&P Options"; pages 9-11 "Automatic PON discovery"; page 13 "fault detection…"; see page 3 "EPON…Ethernet"; page 14

"EPON…Ethernet" ; page 3 "OAM&P feature set from…SONET…one common set") in accordance with SONET (page 3 "OAM&P feature set from…SONET…one common set") on the Ethernet protocol network (see page 9 "CPE…installed on an EPON segment …CPE MAC address"; page 13 "CPE…CPE MAC"; page 11 "head-end MAC"; see page 3 "EPON…Ethernet"; page 13-14 "EPON CPE…EPON…Ethernet")

Muir is silent about:

For claim 81, SONET OAM&P operations including / managing Wave layer, Physical Layer, Line Layer, Section Layer, and Path Layer.

Hall from the same or similar field of endeavor discloses the following:

For claim 81, Hall discloses SONET OAM&P operations including / managing Wave layer, Physical Layer, Line Layer, Section Layer, and Path Layer (see Hall col 3 line 55 through col 5 line 33 "SONET overhead information….provides…OAM&P capabilities…OAM&P….transport overhead….section overhead…line overhead…path overhead…"; see fig. 1c; see Ellis fig. 1, Path, Line, Section, Physical; col 7 line 1 through col 8 line 16 "SONET physical layer...physical layer of SONET...three major entities:...correspond to SONET path, line and section layers...section layer SOH....line layer...path layer...POH...physical medium layer...layer includes optical pulse shape, power levels, and wavelength...physical medium…fiber optics.."; col 11 line 10-20 "line overhead…"; col 12 line 44-55 "section overhead…line overhead")

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify / combine the features of Muir by using the above recited features, as taught by Hall, in order to implement OAM&P functionality as used in SONET into

MAC OAMP (as suggested by Muir page 3), thus being able to use one unified set of OAM&P protocols across various physical / transport protocols or media (Hall)

5. Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muir et al. "OAM&P for EFM" in view of Dreyer et al (US 6,098,103) and Hall et al (US 7,227,844) (as evidenced by Ellis et al US 6,888,791)

For claim 82, Muir discloses a method of providing Ethernet Operations, Administration, Maintenance, and Provisioning OAMP functionality (see page 1 "Operations, Administration, Maintenance & Provisioning"; page 3-5; OAM&P features…OAM&P Options"; pages 9-11 "Automatic PON discovery"; page 13 "fault detection…") on an Ethernet protocol network (see page 3 "EPON…Ethernet"; page 14 "EPON…Ethernet) of a plurality of Ethernet Media Access Control (MAC) hardware devices device (see pages 9-11 "CPE…installed on an EPON segment…CPE MAC address…head-end MAC"; page 13-14 "EPON CPE…CPE…CPE MAC…head"; page 3 "end-node"), wherein the Ethernet (see page 1 "Operations, Administration, Maintenance & Provisioning"; page 3-5; OAM&P features…OAM&P Options"; pages 9-11 "Automatic PON discovery"; page 13 "fault detection…"; see page 3 "EPON…Ethernet"; page 14 "EPON…Ethernet" ; page 3 "OAM&P feature set from…SONET…one common set") MAC OAMP Control supports OAMP functionality ((see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8

"control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame"; see page 11 "sets register bit…not respond to a multicast IDREQUEST"; page 13 "CPE to set a timer for a given period"…CPE has not received a further stay-alive frame") in the form of at least one of Remote Defects ((see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame"; see page 11 "sets register bit…not respond to a multicast IDREQUEST"; page 13 "CPE to set a timer for a given period"…CPE has not received a further stay-alive frame"), and OAMP operations (see page 1 "Operations, Administration, Maintenance & Provisioning"; page 3-5; OAM&P features…OAM&P Options"; pages 9-11 "Automatic PON discovery"; page 13 "fault detection…"), and wherein the plurality of Ethernet MAC hardware devices (see pages 9-11 "CPE…installed on an EPON segment…CPE MAC address…head-end MAC"; page 13-14 "EPON CPE…CPE…CPE MAC…head"; page 3 "end-node") provides Ethernet OAMP functionality (see page 1 "Operations, Administration, Maintenance & Provisioning"; page 3-5; OAM&P features…OAM&P Options"; pages 9-11 "Automatic PON discovery"; page 13 "fault detection…"; see page 3 "EPON…Ethernet"; page 14 "EPON…Ethernet" ; page 3 "OAM&P feature set from…SONET…one common set") in accordance with SONET (page 3 "OAM&P feature set from…SONET…one common set") on the Ethernet protocol network (see page 9 "CPE…installed on an EPON segment

…CPE MAC address"; page 13 "CPE…CPE MAC"; page 11 "head-end MAC"; see page 3 "EPON…Ethernet"; page 13-14 "EPON CPE…EPON…Ethernet")

Muir is silent about:

For claim 82, a MAC Control sublayer, SONET OAM&P operations including / managing Wave layer, Physical Layer, Line Layer, Section Layer, and Path Layer

Dreyer from the same or similar field of endeavor discloses the following:

For claim 82, Dreyer discloses a MAC Control sublayer (see fig 1 and 2; MAC Control Sublayer; 31); a plurality of MAC sublayers (see fig 1; 26, 28; fig 2; 26, 38 (MAC Control sublayer); 31)

Hall from the same or similar field of endeavor discloses the following:

For claim 82, Hall discloses SONET OAM&P operations including / managing Wave layer, Physical Layer, Line Layer, Section Layer, and Path Layer (see Hall col 3 line 55 through col 5 line 33 "SONET overhead information….provides…OAM&P capabilities…OAM&P….transport overhead….section overhead…line overhead…path overhead…"; see fig. 1c; see Ellis fig. 1, Path, Line, Section, Physical; col 7 line 1 through col 8 line 16 "SONET physical layer...physical layer of SONET...three major entities:...correspond to SONET path, line and section layers...section layer SOH....line layer...path layer...POH...physical medium layer...layer includes optical pulse shape, power levels, and wavelength...physical medium…fiber optics.."; col 11 line 10-20 "line overhead…"; col 12 line 44-55 "section overhead…line overhead")

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify / combine the system / features of Muir by using the above recited

features, as taught by Dreyer, Hall in order to provide an architecture of layering within the MAC layer for various control functions, pausing transmission when a threshold in a buffer is reached, proprietary opcodes, selecting pausing of remote stations etc and to provide and an enhanced speed, throughput and interoperability over the basic flow control system in Ethernet networks and maintain full compatibility with IEEE standards (see Dreyer col 7-8); in order to implement OAM&P functionality as used in SONET into MAC OAMP (as suggested by Muir page 3), thus being able to use one unified set of OAM&P protocols across various physical / transport protocols or media (Hall)

6. Claims 1-9, 11, 12-16, 18, 20-22, 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muir et al. "OAM&P for EFM" in view of Dreyer et al (US 6,098,103), Hall et al (US 7,227,844) (as evidenced by Ellis et al US 6,888,791), and Tanaka et al (US 5,289,469)

For claim 1, Muir discloses A Media Access Control (MAC) hardware device (see page 9 "CPE…installed on an EPON segment…CPE MAC address"; page 13-14 "EPON CPE…CPE…CPE MAC"; page 11 "head-end MAC") for supporting Ethernet MAC SONET Operations, Administration, Maintenance, and Provisioning (OAMP) functionality (see page 1 "Operations, Administration, Maintenance & Provisioning"; page 3-5; OAM&P features…OAM&P Options"; pages 9-11 "Automatic PON discovery"; page 13 "fault detection…"; see page 3 "EPON…Ethernet"; page 14 "EPON…Ethernet" ; page 3 "OAM&P feature set from…SONET…one common set") by managing on an Ethernet network (see page 9 "CPE…installed on an EPON segment …CPE MAC address"; page 13 "CPE…CPE MAC"; page 11 "head-end MAC"; see page

3 "EPON…Ethernet"; page 13-14 "EPON CPE…EPON…Ethernet") according with SONET OAM&P (page 3 "OAM&P feature set from…SONET…one common set"), comprising:

OAMP functionality (see page 1 "Operations, Administration, Maintenance & Provisioning"; page 3-5; OAM&P features…OAM&P Options"; pages 9-11 "Automatic PON discovery"; page 13 "fault detection…") using a MAC layer (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 11 "head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame") managing OAMP state (see page 1 "Operations, Administration, Maintenance & Provisioning"; page 3-5; OAM&P features…OAM&P Options"; pages 9-11 "Automatic PON discovery"; page 13 "fault detection…"; page 11 "sets register bit…not respond to a multicast IDREQUEST"; page 13 "CPE to set a timer for a given period"…CPE has not received a further stay-alive frame") and processing OAMP control frames (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame") ;

carrying out MAC operations (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 11 "head-end MAC"; page 6 "mechanism can be used to

exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame") supporting Ethernet MAC OAMP functionality (see page 1 "Operations, Administration, Maintenance & Provisioning"; page 3-5; OAM&P features…OAM&P Options"; pages 9-11 "Automatic PON discovery"; page 13 "fault detection…"; see page 3 "EPON…Ethernet"; page 14 "EPON…Ethernet" ; page 3 "OAM&P feature set from…SONET…one common set") by processing an OAMP control frame (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame")

wherein the Ethernet MAC hardware device (see page 9 "CPE…installed on an EPON segment…CPE MAC address"; page 13-14 "EPON CPE…CPE…CPE MAC"; page 11 "head-end MAC") is configurable to provide Ethernet OAMP functionality (see page 1 "Operations, Administration, Maintenance & Provisioning"; page 3-5; OAM&P features…OAM&P Options"; pages 9-11 "Automatic PON discovery"; page 13 "fault detection…") for the Ethernet network (see page 9 "CPE…installed on an EPON …CPE MAC address"; page 13 "CPE…CPE MAC"; page 11 "head-end MAC"; see page 3 "EPON…Ethernet"; page 14 "EPON…Ethernet") according to SONET OAMP (page 3 "OAM&P feature set from…SONET…one common set")

For claim 2, Muir disclose performs at least one of creating, OAMP frames (see page 9 “CPE…CPE MAC address”; page 13 "CPE…CPE MAC”; page10- 11 “IDREQUEST…IDRETURN…head-end MAC”; page 6 ”mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…”; page 8 “control frame formats…PAUSE frame…newly defined control frame format”; page 9 “MAC Control frame”; page 13 “PAUSE MAC frame”).

For claim 3, Muir discloses provides an architecture for OAMP functionality (see pages 9-12 “Discovery”) in the form of at least one of administration (see pages 9-13 “ CPE is installed…mechanism is required to inform the head-end of the…MAC address….CPE isolation after a fault”)

For claim 4, Muir discloses supports OAMP functionality (see page 1 “Operations, Administration, Maintenance & Provisioning”; page 3-5; OAM&P features…OAM&P Options”; pages 9-11 “Automatic PON discovery”; page 13 “fault detection…”) in the form of at least one of, Remote Defects (see page 13 “CPE Isolation after a fault...fault detection...Watchdog timer...after the set period the CPE has not received...fault...detection of a transmitter fault...switch off the laser driver or power down the TX"), and OAM&P operations (see page 1 “Operations, Administration, Maintenance & Provisioning”; page 3-5; OAM&P features…OAM&P Options”; pages 9-11 “Automatic PON discovery”; page 13 “fault detection…”)

For claim 5, Muir discloses OAM&P supports end to end OAMP information (see pages 9-11 "CPE…head-end…tow ends of the link…head-end MAC….CPE…"; page 3 "EFM…end-node")

For claim 6, Muir discloses OAM&P SONET control functionality (see page 1 "Operations, Administration, Maintenance & Provisioning"; page 3-5; OAM&P features…OAM&P Options"; pages 9-11 "Automatic PON discovery"; page 13 "fault detection…"; see page 3 "EPON…Ethernet"; page 14 "EPON…Ethernet" ; page 3 "OAM&P feature set from…SONET…one common set") in an Ethernet network (see page 9 "CPE…installed on an EPON segment …CPE MAC address"; page 13 "CPE…CPE MAC"; page 11 "head-end MAC"; see page 3 "EPON…Ethernet"; page 13-14 "EPON CPE…EPON…Ethernet")

For claim 7, Muir discloses processes OAMP information for a layer terminated by the MAC layer (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame") and the physical (see page 4 "OAM&P options…Loop back (phy)…far-end phy"; page 13 "isolate CPE on fault detection…CPE is faulty…transmit side is faulty…when the CPE is functioning properly…CPE-receiver-side fault…transmitter fault…switch off laser drive or power-

down the TX side").

For claim 8, Muir discloses wherein the MAC OAMP Control monitors OAMP information (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame").

For claim 9, Muir discloses control frames (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame")

For claim 11, Muir discloses MAC OAMP Control is implemented (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame") in the MAC hardware device (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 11 "head-end MAC")

For claim 18, Muir discloses MAC OAMP Control supports OAMP (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame") for physical links/line (see page 9 "link"; see page 4 "OAM&P options…Loop back (phy)…far-end phy"; page 13 "isolate CPE on fault detection…CPE is faulty…transmit side is faulty…when the CPE is functioning properly…CPE-receiver-side fault…transmitter fault…switch off laser drive or power-down the TX side")

For claim 21, Muir discloses wherein the MAC OAMP Control processes an Ethernet (see page 3 "EPON…Ethernet"; page 14 "EPON…Ethernet) MAC OAMP control frame (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame").

For claim 22, Muir discloses wherein the MAC OAMP Control maintains an Ethernet (see page 3 "EPON…Ethernet"; page 14 "EPON…Ethernet) MAC OAMP control state (see page 11 "sets register bit…not respond to a multicast IDREQUEST"; page 13 "CPE to set a timer for a given period"…CPE has not received a further stay-alive frame").

For claim 25, Muir discloses the MAC OAMP Control (see page 9 “CPE…CPE MAC address”; page 13 "CPE…CPE MAC”; page 10- 11 “IDREQUEST…IDRETURN…head-end MAC”; page 6 ”mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…”; page 8 “control frame formats…PAUSE frame…newly defined control frame format”; page 9 “MAC Control frame”; page 13 “PAUSE MAC frame”) and Ethernet (see page 3 "EPON…Ethernet”; page 14 “EPON…Ethernet).

For claim 26, Muir discloses wherein the MAC OAMP Control responds to an Ethernet (see page 3 "EPON…Ethernet”; page 14 “EPON…Ethernet) MAC OAMP control frame (see page 9 “CPE…CPE MAC address”; page 13 "CPE…CPE MAC”; page 10- 11 “IDREQUEST…IDRETURN…head-end MAC”; page 6 ”mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…”; page 8 “control frame formats…PAUSE frame…newly defined control frame format”; page 9 “MAC Control frame”; page 13 “PAUSE MAC frame”).

For claim 27, Muir discloses MAC OAMP control (see page 9 “CPE…CPE MAC address”; page 13 "CPE…CPE MAC”; page 10- 11 “IDREQUEST…IDRETURN…head-end MAC”; page 6 ”mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…”; page 8 “control frame formats…PAUSE frame…newly defined control frame format”; page 9 “MAC Control frame”; page 13 “PAUSE MAC frame”).

For claim 28, Muir discloses wherein the MAC OAMP Control (see page 9 “CPE…CPE MAC address”; page 13 "CPE…CPE MAC”; page 10- 11

"IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame") and a received Ethernet (see page 3 "EPON…Ethernet"; page 14 "EPON…Ethernet) MAC OAMP control frame (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame").

Muir is silent about:

For claim 1, a MAC Control sublayer; frame stored on an Ethernet MAC hardware device; a plurality of MAC sublayers for carrying out MAC operations; SONET OAM&P operations including / managing Wave layer, Physical Layer, Line Layer, Section Layer, and Path Layer

For claim 5, Wave layer, a Physical layer, a Section layer, a Line layer, and a Path layer.

For claim 6, Network equipment functionality; configured to terminate OAMP information for section layer

For claim 7, MAC Control sublayer and layers below the MAC layer.

For claim 8, wherein the MAC Control sublayer monitors information for an unterminated layer.

For claim 9, the plurality of MAC sublayers further comprises at least one MAC Control sublayer for generating control frames.

For claim 11 and similarly 18, MAC sublayer in MAC device.

For claim 12, supports OAMP for a wave layer.

For claim 13, supports OAMP for a physical layer.

For claim 14, supports OAMP for a section layer.

For claim 15, supports OAMP for a line layer.

For claim 16, supports OAMP for a path layer.

For claim 20, MAC sublayers is implemented in at least one of an Ethernet MAC device.

For claim 21, 22, 26, Mac control sublayer.

For claim 25, wherein the MAC Control sublayer communicates with an Ethernet MAC Client

For claim 27, MAC control sublayer communicates with an Ethernet phy.

For claim 28, wherein the MAC Control sublayer operates as a pass through for a received Ethernet MAC control frame.

Dreyer from the same or similar field of endeavor discloses the following:

For claim 1 and similarly 21, 22, 26, Dreyer discloses a MAC Control sublayer (see fig 1 and 2; MAC Control Sublayer; 31); a plurality of MAC sublayers (see fig 1; 26, 28; fig 2; 26, 38 (MAC Control sublayer); 31) for carrying out MAC operations (see col 2 line 1-

30;); For claim 7, Dreyer discloses MAC Control sublayer (see fig 1 and 2; MAC Control Sublayer; 31) and layers below the MAC layer.

For claim 8, Dreyer discloses wherein the MAC Control sublayer monitors (see fig 1 and 2; MAC Control Sublayer; Medic access control) information (see fig 2; MA_Data.indication, MA_CONTROL.indication") for an unterminated layer (see fig 2; 31).

For claim 9, Dreyer discloses the plurality of MAC sublayers (see fig 1; 26, 28; fig 2; 26, 38 (MAC Control sublayer); 31) further comprises at least one MAC Control sublayer (see fig 1 and 2; MAC Control Sublayer; 31) for generating control frames (see col 2 lines 1-30 "MAC control 28, which is responsible sending and receiving MAC control Frames").

For claim 11 and similarly 18, Dreyer discloses MAC sublayer (see fig 1 and 2; MAC Control Sublayer; 31) in MAC device

For claim 20, Dreyer discloses MAC sublayers (see fig 1; 26, 28; fig 2; 26, 38 (MAC Control sublayer); 31) is implemented in at least one Ethernet MAC device (see col 3 lines 20-35 "Ethernet switch"; col 8 line 1-10 "MAC device").

For claim 21, 22, 26, 27, 81, 82, Dreyer discloses Mac control sublayer (see fig 1 and 2; MAC Control Sublayer, 31).

For claim 25, Dreyer discloses wherein the MAC Control sublayer (see fig 1 and 2; MAC Control Sublayer; Media Access Control) communicates with an Ethernet MAC Client (see col 6 line 6-67 "transfer of data from the MAC sublayer entity (through the optional MAC control sublayer...to the MAC client entity…MAC entity…will also be invoked by

the MAC entity to the MAC client entity"; col 7 lines 10-35 "transfer of control…indications from the MAC control sublayer to the MAC client"; col 2 lines 50-60 "Ethernet ")

For claim 27, Dreyer discloses MAC control sublayer (see fig 1 and 2; MAC Control Sublayer, 31) communicates with an Ethernet phy (see fig 2; 14; functions; col 8 line 45-55 "Ethernet LAN"; col 2 lines 35-60 "Ethernet").

For claim 28, Dreyer discloses wherein the MAC Control sublayer operates as a pass through for a received Ethernet (col 8 line 45-55 "Ethernet LAN"; col 2 lines 35-60 "Ethernet") MAC control frame (see col 6 lines 51-67 "indicates the arrival of a frame to the local MAC sublayer…destined for the MAC client"; col 13 lines 24-50 "pass…process the MAC control frames in some section of the system other than the MAC"; col 6 lines 5-35 "MAC client layer…typically the LLC…"; col 7 line 15-25 "MAC Client (such as the LLC)"; col 2 line 10-15 "client…for transmitting and receiving frames").

Hall from the same or similar field of endeavor discloses the following:

For claim 1, Hall discloses SONET OAM&P operations including / managing Wave layer, Physical Layer, Line Layer, Section Layer, and Path Layer (see Hall col 3 line 55 through col 5 line 33 "SONET overhead information….provides…OAM&P capabilities…OAM&P….transport overhead….section overhead…line overhead…path overhead…"; see fig. 1c; see Ellis fig. 1, Path, Line, Section, Physical; col 7 line 1 through col 8 line 16 "SONET physical layer...physical layer of SONET...three major

entities:...correspond to SONET path, line and section layers...section layer SOH....line layer...path layer...POH...physical medium layer...layer includes optical pulse shape, power levels, and wavelength...physical medium…fiber optics.."; col 11 line 10-20 "line overhead…"; col 12 line 44-55 "section overhead…line overhead")

For claim 5, Hall discloses Wave layer, a Physical layer, a Section layer, a Line layer, and a Path layer (see Hall col 3 line 55 through col 5 line 33 "SONET overhead information….provides…OAM&P capabilities…OAM&P….transport overhead….section overhead…line overhead…path overhead…"; see fig. 1c; see Ellis fig. 1, Path, Line, Section, Physical; col 7 line 1 through col 8 line 16 "SONET physical layer...physical layer of SONET...three major entities:...correspond to SONET path, line and section layers...section layer SOH....line layer...path layer...POH...physical medium layer...layer includes optical pulse shape, power levels, and wavelength...physical medium…fiber optics.."; col 11 line 10-20 "line overhead…"; col 12 line 44-55 "section overhead…line overhead").

For claim 6, Hall discloses Network equipment functionality (see col 3 line 30-50 "network equipment supporting…multiplexing, switching or transport…"); configured to terminate OAMP information for section layer (see Hall col 3 line 55 through col 5 line 33 "SONET overhead information….provides…OAM&P capabilities…OAM&P….transport overhead….section overhead…line overhead…path overhead…"; see fig. 1c; see Ellis fig. 1, Path, Line, Section, Physical; col 7 line 1 through col 8 line 16 "SONET physical layer...physical layer of SONET...three major entities:...correspond to SONET path, line and section layers...section layer SOH....line

layer...path layer...POH...physical medium layer...layer includes optical pulse shape, power levels, and wavelength...physical medium…fiber optics.."; col 11 line 10-20 "line overhead…"; col 12 line 44-55 "section overhead…line overhead")

For claim 12, Hall discloses supports OAMP for a wave layer (see Hall col 3 line 55 through col 5 line 33 "SONET overhead information….provides…OAM&P capabilities…OAM&P….transport overhead….section overhead…line overhead…path overhead…"; see fig. 1c; see Ellis fig. 1, Path, Line, Section, Physical; col 7 line 1 through col 8 line 16 "SONET physical layer...physical layer of SONET...three major entities:...correspond to SONET path, line and section layers...section layer SOH....line layer...path layer...POH...physical medium layer...layer includes optical pulse shape, power levels, and wavelength...physical medium…fiber optics.."; col 11 line 10-20 "line overhead…"; col 12 line 44-55 "section overhead…line overhead").

For claim 13, Hall discloses supports OAMP for a physical layer (see Hall col 3 line 55 through col 5 line 33 "SONET overhead information….provides…OAM&P capabilities…OAM&P….transport overhead….section overhead…line overhead…path overhead…"; see fig. 1c; see Ellis fig. 1, Path, Line, Section, Physical; col 7 line 1 through col 8 line 16 "SONET physical layer...physical layer of SONET...three major entities:...correspond to SONET path, line and section layers...section layer SOH....line layer...path layer...POH...physical medium layer...layer includes optical pulse shape, power levels, and wavelength...physical medium…fiber optics.."; col 11 line 10-20 "line overhead…"; col 12 line 44-55 "section overhead…line overhead").

For claim 14, Hall discloses supports OAMP for a section layer (see Hall col 3 line 55 through col 5 line 33 “SONET overhead information….provides…OAM&P capabilities…OAM&P….transport overhead….section overhead…line overhead…path overhead…”; see fig. 1c; see Ellis fig. 1, Path, Line, Section, Physical; col 7 line 1 through col 8 line 16 "SONET physical layer...physical layer of SONET...three major entities:...correspond to SONET path, line and section layers...section layer SOH....line layer...path layer...POH...physical medium layer...layer includes optical pulse shape, power levels, and wavelength...physical medium…fiber optics.."; col 11 line 10-20 “line overhead…”; col 12 line 44-55 “section overhead…line overhead”).

For claim 15, Hall discloses supports OAMP for a line layer (see Hall col 3 line 55 through col 5 line 33 “SONET overhead information….provides…OAM&P capabilities…OAM&P….transport overhead….section overhead…line overhead…path overhead…”; see fig. 1c; see Ellis fig. 1, Path, Line, Section, Physical; col 7 line 1 through col 8 line 16 "SONET physical layer...physical layer of SONET...three major entities:...correspond to SONET path, line and section layers...section layer SOH....line layer...path layer...POH...physical medium layer...layer includes optical pulse shape, power levels, and wavelength...physical medium…fiber optics.."; col 11 line 10-20 “line overhead…”; col 12 line 44-55 “section overhead…line overhead”).

For claim 16, Hall discloses supports OAMP for a path layer (see Hall col 3 line 55 through col 5 line 33 “SONET overhead information….provides…OAM&P capabilities…OAM&P….transport overhead….section overhead…line overhead…path overhead…”; see fig. 1c; see Ellis fig. 1, Path, Line, Section, Physical; col 7 line 1

through col 8 line 16 "SONET physical layer...physical layer of SONET...three major entities:...correspond to SONET path, line and section layers...section layer SOH....line layer...path layer...POH...physical medium layer...layer includes optical pulse shape, power levels, and wavelength...physical medium…fiber optics.."; col 11 line 10-20 "line overhead…"; col 12 line 44-55 "section overhead…line overhead").

Tanaka from the same or similar field of endeavor discloses the following:
For claim 1, Tanaka discloses frame stored on an Ethernet MAC hardware device (see fig. 1, 140; see col 2 line 50 through col 3 line 10 "buffer means to buffer MAC frames"; see col 3 line 40 through col 4 line 15 "MAC…"; col 7 lines 40-55 "MAC frame…frame stored in MAC buffer means")

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify / combine the system / features of Muir by using the above recited features, as taught by Dreyer, Hall, and Tanaka in order to provide an architecture of layering within the MAC layer for various control functions, pausing transmission when a threshold in a buffer is reached, proprietary opcodes, selecting pausing of remote stations etc and to provide and an enhanced speed, throughput and interoperability over the basic flow control system in Ethernet networks and maintain full compatibility with IEEE standards (see Dreyer col 7-8); in order to implement OAM&P functionality as used in SONET into MAC OAMP (as suggested by Muir page 3), thus being able to use one unified set of OAM&P protocols across various physical / transport protocols or

media (Hall); in order to provides buffering means, thus avoiding loss of data when the amount / rate of data received is higher than what further processing circuitry can handle (Tanaka);

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muir et al. "OAM&P for EFM" and Dreyer et al (US 6,098,103), Hall et al (US 7,227,844) (as evidenced by Ellis et al US 6,888,791), and Tanaka et al (US 5,289,469) as applied to claim 1 above, further in view of Dawson (US 6,775,804)

For claim 10, Muir, Hall, Dreyer, and Tanaka disclose the claimed invention as described above and further control frames (see Muir page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame"); MAC Control Layer (see Dreyer fig 1 and 2; MAC Control Sublayer; 31).

Muir, Hall, Dreyer, and Tanaka are silent about:

For claim 10, processes optional VLAN tags in frames

Dawson from the same or similar field of endeavor discloses a communication network with the following features:

For claim 10, processes optional VLAN tags in frames (see col 5 lines 17-35 "MAC header…a virtual LAN…tag"; col 5 line 55 through col 6 line 10 "VLAN tags are added to the MAC header")

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify / combine the system of , Muir, Hall, Dreyer, and Tanaka by using the above recited features, as taught by Dawson, in order to provide a method of grouping a group of users by logical addresses into a virtual LAN rather than a physical LAN (see col 5-6)

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muir et al. "OAM&P for EFM" and Dreyer et al (US 6,098,103), Hall et al (US 7,227,844) (as evidenced by Ellis et al US 6,888,791), and Tanaka et al (US 5,289,469) as applied to claim 1 above, further in view of Wils et a (US 2004/0022185).

For claim 17, Muir, Hall, Dreyer, and Tanaka discloses the claimed invention as described above.

For claim 17, Muir further discloses wherein the MAC OAMP Control supports OAMP (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame") for links (see page 9 "link");

MAC Control Layer (see Dreyer fig 1 and 2; MAC Control Sublayer; 31) for link(s) (see Dreyer fig 1 and 2 Physical).

Muir, Hall, Dreyer, and Tanaka are silent about:

For claim 17, logical links/line formed by a Link Aggregation sublayer.

Wils from the same or similar field of endeavor discloses a communication network with the following features:

For claim 17, Wils discloses logical links/line formed by a Link Aggregation sublayer (see section 0016,19 "link aggregation sublayer").

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Muir, Hall, Dreyer, and Tanaka by using the features, as taught by Wils, in order to provide "for up to as many communication paths between the cluster members (aggregation member devices) as there are aggregate links in a trunk switch cluster or aggregated switch set " and to improve reliability and throughput (see Wils sections 0007-16)

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muir et al. "OAM&P for EFM" and Dreyer et al (US 6,098,103), Hall et al (US 7,227,844) (as evidenced by Ellis et al US 6,888,791), and Tanaka et al (US 5,289,469) as applied to claim 1 above, further in view of Adler (US 7,068,663)

For claim 19, Muir, Hall, Dreyer, and Tanaka disclose the MAC OAMP control supports OAMP(see page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE

frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame"); and MAC control sublayer (see Dreyer fig 1 and 2; MAC Control Sublayer; 31).

Muir, Hall, Dreyer, and Tanaka are silent about:

For claim 19, end to end network layer paths

Adler from the same or similar field of endeavor discloses the following:

For claim 19, Adler discloses end to end network layer paths (see col 2 line 14-60 "end-to-end provisioning…end-to-end service…Internet protocol")

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify / combine the system of Muir, Hall, Dreyer, and Tanaka by using the above recited features, as taught by Adler, in order to provide an end-to-end provisioning method and restoration of functions in SONET/SDH network and packet networks (see Adler col 1-2).

10. Claims 23, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muir et al. "OAM&P for EFM" and Dreyer et al (US 6,098,103), Hall et al (US 7,227,844) (as evidenced by Ellis et al US 6,888,791), and Tanaka et al (US 5,289,469) as applied to claim 1, further in view of Jacobson et al (US 6,381,250).

For claim 23 and 24, Muir, Hall, Dreyer, and Tanaka discloses the claimed invention as described above.

For claim 23, Muir discloses MAC OAMP Control invokes functions when an OAMP frame is detected (see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC";

page 10- 11 “IDREQUEST…IDRETURN…head-end MAC”; page 6 ”mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…”; page 8 “control frame formats…PAUSE frame…newly defined control frame format”; page 9 “MAC Control frame”; page 13 “PAUSE MAC frame”; see page 11 “sets register bit…not respond to a multicast IDREQUEST”; page 13 “CPE to set a timer for a given period”…CPE has not received a further stay-alive frame”)

For claim 24, Muir discloses wherein the MAC OAMP Control generates a function when an OAMP state change is detected (see page 9 “CPE…CPE MAC address”; page 13 "CPE…CPE MAC”; page 10- 11 “IDREQUEST…IDRETURN…head-end MAC”; page 6 ”mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…”; page 8 “control frame formats…PAUSE frame…newly defined control frame format”; page 9 “MAC Control frame”; page 13 “PAUSE MAC frame”; see page 11 “sets register bit…not respond to a multicast IDREQUEST”; page 13 “CPE to set a timer for a given period”…CPE has not received a further stay-alive frame”)

For claim 23, Dreyer discloses wherein the MAC Control sublayer (see Dreyer fig 1 and 2; MAC Control Sublayer, Media access control;) when an frame is detected to invoke a MAC Client (see col 6 line 6-67 “transfer of data from the MAC sublayer entity (through the optional MAC control sublayer...to the MAC client entity…MAC entity…will also be invoked by the MAC entity to the MAC client entity"; col 7 lines 10-35 “transfer of control…indications from the MAC control sublayer to the MAC client”).

For claim 24, Dreyer discloses wherein the MAC Control Layer (see Dreyer fig 1 and 2; MAC Control Sublayer, Media access control;) when an OAMP state change is detected to invoke a MAC Client (see col 6 line 6-67 "transfer of data from the MAC sublayer entity (through the optional MAC control sublayer...to the MAC client entity…MAC entity…will also be invoked by the MAC entity to the MAC client entity"; col 7 lines 10-35 "transfer of control…indications from the MAC control sublayer to the MAC client")

Muir, Hall, Dreyer, and Tanaka are silent about:

For claim 23, wherein the generates an interrupt when an command is detected to invoke a program.;

For claim 24, an interrupt when an state change is detected to invoke a program;

Jacobson from the same field of endeavor discloses a system with the following features:

For claim 23, Jacobson discloses wherein the generates an interrupt when an command is detected to invoke a program (see col 17 lines 2-25 "command…interrupt then invokes the program to service the data condition").

For claim 24, Jacobson discloses an interrupt when an state change is detected to invoke a program (see col 17 lines 2-25 "command…interrupt then invokes the program to service the data condition").

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify / combine the system / features of Muir, Hall, Dreyer, and Tanaka by using the features, as taught by Jacobson, in order to provide a mechanism which will signal a need for (immediate) attention to a program/processor in order to handle time critical situations.

11. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable Muir et al. "OAM&P for EFM" and Dreyer et al (US 6,098,103), Hall et al (US 7,227,844) (as evidenced by Ellis et al US 6,888,791), and Tanaka et al (US 5,289,469) as applied to claim 1, further in view of Pinto et al (US 2002/0133622).

For claim 29, Muir, Hall, Dreyer, and Tanaka discloses the claimed invention as described above and further Muir discloses, the MAC OAMP Control receiving Ethernet (see page 3 "EPON…Ethernet"; page 14 "EPON…Ethernet) MAC OAMP control frame ((see page 9 "CPE…CPE MAC address"; page 13 "CPE…CPE MAC"; page 10- 11 "IDREQUEST…IDRETURN…head-end MAC"; page 6 "mechanism can be used to exchange OAM&P information….MAC Control Frame…Pause control…"; page 8 "control frame formats…PAUSE frame…newly defined control frame format"; page 9 "MAC Control frame"; page 13 "PAUSE MAC frame"; see page 11 "sets register bit…not respond to a multicast IDREQUEST"; page 13 "CPE to set a timer for a given period"…CPE has not received a further stay-alive frame").

For claim 29, Dreyer discloses a MAC control sublayer Layer (see Dreyer fig 1 and 2; MAC Control Sublayer, Media access control;)

Muir, Hall, Dreyer, and Tanaka are silent about:

For claim 29, retransmit after modifying a received Ethernet frame

Pinto from the same or similar field of endeavor discloses a communication network with the following features:

For claim 29, retransmit after modifying a received Ethernet frame (see sections 0050-53 "added to packet…rebroadcast" ;section 0016, 0023 "Ethernet")

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify / combine the system of Muir, Hall, Dreyer, and Tanaka by using the above recited features, as taught by Pinto, in order to provide a method for nodes in a network to have an understanding of nodes (ie map of the nodes in the network) which is not time consuming and requires a lot of bandwidth (see Pinto sections 0004-10).

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENAN CEHIC whose telephone number is (571)270-3120. The examiner can normally be reached on Monday through Friday 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KWANG BIN YAO can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kenan Cehic/
Examiner, Art Unit 2416

/KWANG B. YAO/

Supervisory Patent Examiner, Art Unit 2416